

**REMARKS/ARGUMENTS**

1. The allowance of claims 14-19 is noted.
2. Claims 13 and 20-24 stand rejected under 35 U.S.C. 103(a) as discussed below.
  3. In paragraph 2 of the Detailed Action portion of the Office Action, the Examiner, in response to Applicants' earlier arguments, discusses Bossarte et al. U.S. Patent 6,490,977 ("Bossarte") in connection with the Applicants' arguments filed on April 14, 2009. Essentially, the Examiner contends that because Bossarte teaches that the interface module 20 and the distribution panel 22 may be integrated into a single package, the Examiner considers the integrated package as the "blast control unit", which is therefore directly connected to the plurality of detonators (ignitors 4).
  4. Further, the Examiner contends that it is the battery 27 of Bossarte which alone is considered to comprise the "blast key of Bossarte", the Examiner specifically stating that the Applicants' contention that the combination of key switch 25 and battery 27 comprises the blast key.
  5. While not necessarily agreeing with the reasons set forth by the Examiner for these interpretations, Applicants are proceeding on the basis set forth by the Examiner. Thus, with reference to Figure 2 of Bossarte, it appears that the Examiner considers the combination of Bossarte's computer system 31, control panel 11, interface module 20 and distribution panel 22, all taken together, to be the equivalent of Applicants' blast control unit 12 as shown in the sole Figure of Applicants' application. As stated by the Examiner, Bossarte's battery 27 is considered to be the equivalent of Applicants' blast key 16. Reference below to the blast control unit and blast key of Bossarte are based on this analysis.
  6. Applicants have amended claim 13 solely for improved clarity and specificity of description in order to facilitate comparison to Bossarte and the other art of record.
  7. Accepting, for the purposes of discussion, the Examiner's analysis of Bossarte as summarized above, it is seen that Bossarte lacks elements of claim 13 both as originally presented and as amended herein.
  8. Specifically, claim 13 requires that the blast control unit contain a first energy source, which is entirely lacking in Bossarte. The only energy source for initiat-

ing the ignitors (detonators) in Bossarte is provided by the battery 27, which the Examiner equates to Applicants' blast key 16.

9. Claim 13 both as originally presented and as amended herein, requires that when the blast key is connected to the blast control unit, the blast energy generator (22) is capable of producing a voltage at a level which is suitable for arming the detonators by using a defined energy source or sources. As specified in subparagraph (i) of amended claim 13, the energy utilized by the blast energy generator is the first energy source in the blast control unit (12). However, as noted above, Bossarte lacks such first energy source or any equivalent thereof.

10. Applicants' claim 13 also provides that when the on-board energy source is present the blast energy generator utilizes one or both of the energy from the first energy source in the blast control unit (non-existent in Bossarte) and the on-board energy source 40 in the blast key. Inasmuch as the Examiner considers the battery 27 of Bossarte to be the equivalent of Applicants' blast key, there is no blast energy generator separate from an on-board energy source. Rather, there is in Bossarte only an energy source and no blast energy generator.

11. The above analysis is summarized in the following chart which compares each element of claim 13 as presently amended with the disclosure of Bossarte. The following chart shows that Bossarte lacks at least the first energy source and the blast energy generator, each being a non-optional element of claim 13.

Amended Claim 13	Is the Claim Element Present in Bossarte?
A blasting arrangement which includes	Bossarte is concerned with pyrotechnic initiation.
(a) a plurality of detonators,	Yes. (Ignitors 4).
(b) a blast control unit which is connected to the plurality of detonators and which	Yes.
contains a first energy source,	No. Bossarte lacks an energy source in the blast control unit.

the blast control unit being physically incapable of directly providing a voltage at a level which is suitable for arming the detonators, and	Yes. Bossarte lacks any ignitor-initiating energy source other than battery 27, which is stated by the Examiner to be the equivalent of Applicants' blast key 16.
(c) a blast key which is removably connected to the blast control unit and which includes	For the sake of discussion, yes. (Battery 27).
a blast energy generator and	<b>No.</b> The "blast key" of Bossarte is a simple battery which the Examiner considers to be analogous to Applicants' optional on-board energy source.
optionally contains an on-board energy source,	Yes, Bossarte's battery 27 <u>is</u> (only) an energy source.
wherein, when the blast key is connected to the blast control unit, the blast energy generator is operable to produce a voltage at a level which is suitable for arming the detonators	<b>No.</b> Bossarte lacks a blast energy generator.
(i) by using energy selected from the first energy source in the blast control unit and	<b>No.</b> Bossarte lacks any energy source in the blast control unit.
(ii), when the on-board energy source is present, by using energy selected from one or both of	Yes, Bossarte's battery 27 <u>is</u> the "on-board energy source" (and nothing more).
the first energy source in the blast control unit and	<b>No.</b> There is no energy source in Bossarte's blast control unit.
the on-board energy source in the blast key.	Yes.

**Rejection of Claims 13, 20, 21, 22 and 23**

12. Claims 13, 20, 21, 22 and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bossarte. With respect to claims 13 and 20, the Examiner cites column 5, lines 64-66 of Bossarte as stating that the distribution panel 22 and interface unit 20 may be included in a single package. The Examiner therefore considers that this integrated package as a whole "and all circuitry contained within it" is considered to be the "blast control unit" which is therefore directly connected to the plurality of detonators.

13. Battery 27 is cited by the Examiner as a blast key which is connected to the blast control unit and is described by the Examiner as including "a blast energy generator (27)" which is said to be "operable to produce a voltage at a level which is suitable for arming the detonators using energy selected from a source in the blast key". The Examiner cites column 6 at lines 35 to 46 of Bossarte as teaching that the "blast key 27" provides energy at a level suitable to carry out detonation.

This ground of rejection is respectfully traversed.

14. The difficulty which Applicants see with the Examiner's analysis is that (1) Bossarte has no first energy source in its "blast control unit" and (2) Bossarte has no blast energy generator (Applicants' item 22) to use energy selected from an on-board energy source (Applicants' optional item 40) or anywhere else. The Examiner is ascribing "double duty" to Bossarte's battery 27 as the equivalent of both Applicants' blast energy generator 22, and the first energy source (unnumbered) contained within Applicants' blast control unit 12. It is seen that with respect to the embodiment described by sub-paragraph (i) of Applicants' claim 13, Bossarte lacks an essential element of claim 13. With respect to the optional alternate defined by sub-paragraph (ii), Bossarte must be interpreted by the Examiner as though the simple battery 27 is capable of providing both the equivalent of Applicants' blast energy generator 22, and the on-board energy source 40.

15. It is respectfully submitted that it is clear that Bossarte is entirely inadequate as a reference to support a rejection under 35 U.S.C. 103(a).

16. In paragraph 10 of the Detailed Action, the Examiner cites *Nerwin v. Erlichman*, 168 USPQ 177, for the proposition that constructing a formally integral structure in various elements involves only routine skill in the art. It is respectfully

submitted that that is not the issue at hand. Applicants contend for the patentability of claim 13 based on the defined structure which is not shown or suggested in the prior art.

17. With respect to the Examiner's comments concerning claim 21, it is noted that this claim, in addition to defining a housing, requires the presence of a blast energy generator which is not shown or suggested in Bossarte.

18. With respect to the Examiner's comments concerning dependent claims 22 and 23, these claims are believed to be patentable at least for the reason that they depend from patentable claim 13.

#### **Rejection of Claim 24**

19. Claim 24 stands rejected under 35 U.S.C. 103(a) as unpatentable over Bossarte in view of Phinney U.S. Patent 3,721,860 ("Phinney").

This ground of rejection is respectfully traversed.

20. The rejection is traversed at least for the reason that claim 24 depends from patentable claim 13. Further, as acknowledged by the Examiner in paragraph 16 of the Detailed Action, the relevant portion of Phinney is merely a teaching of a hand crank power supply (10) that comprises a manually-operable input device (103), i.e., a hand crank, (column 4, lines 22-23 of Phinney).

21. In paragraph 17 of the Detailed Action, the Examiner contends that it would have been obvious to one having ordinary skill in the art at the time the Applicants' invention was made "to replace the battery/blast key of Bossarte with the hand crank supply/blast key of Phinney" in view of Phinney's teaching of the advantage of such hand crank power supplies over batteries. But modification of Bossarte with Phinney as described in paragraph 17 of the Detailed Action does not attain or render obvious the claimed structure. Applicants' claim 24 defines manually operable input devices for operating Applicants' control logic unit 26. Merely substituting a hand-cranked energy source for what the Examiner describes as "the battery/blast key of Bossarte" that is, Bossarte's battery 27, does not attain or suggest the structure defined by claim 24, for the reasons given above.

22. In paragraph 18 of the Detailed Action, the Examiner notes that upon the modification of Bossarte in view of Phinney Bossarte's control logic unit (53) would

be responsive to the input device (103) of Phinney, the latter replacing the battery 27 of Bossarte and being physically connected (by Bossarte's wires 28) to both control logic unit and power converter 55 (Figure 4). Again, substituting a hand crank power source for Bossarte's battery 27 does not attain or suggest the structure defined in Applicants' claim 13 and in the claims directly or ultimately dependent thereon, for the reasons adduced above and in Applicants' remarks in earlier papers in this case.


23. New claim 25 has been added in order to recapture the claim coverage deleted from amended claim 20.

24. In view of foregoing, it is respectfully submitted that each of the pending claims is now in condition for allowance and such action is respectfully requested.

25. As discussed by telephone with the Examiner, a further telephone interview is requested after the Examiner has had the opportunity to review this response if the Examiner does not agree that the response places all pending claims in condition for allowance.

Respectfully submitted,

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